

Psychological impacts of flash flooding in the Klang Valley, Malaysia

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Abstract. Recently, rapid development of the Klang Valley has tended to squeeze settlement developments

into fragile areas, particularly flood plains, due to the limited supply of suitable non-hazardous land.

Developments on these flood plains will be exposed to the risk of flooding. The Klang Valley is well known for its serious problems with flash floods: they generally occur four to five times a year and sometimes more

often. Two to three hours of heavy rain is enough to cause the river in the Klang Valley to reach its peak discharge. Flash floods have led to intangible psychological impacts on the effected residents. This research

will discuss the psychological impacts of flash flooding in two residential areas with different levels of living

community and different housing constructions. The first is the properly planned settlement of TTDI Jaya and the second is the squatter settlement of Kampung Haji Abdullah Hukom. The information discussed here

is drawn from interviews with the residents and questionnaire surveys.

Keywords: Psychological impacts, flash floods, Klang Valley, flood plain development

1. Introduction

This paper explores the ways in which residents of TTDI Jaya and Kampung Haji Abdullah Hukom have

experienced and perceived flash floods. In order to understand the psychological impact of flash floods for

people living in commercial housing developments, the residential estate of TTDI Jaya in Shah Alam,

Selangor, located on the flood plain of the Damansara River in the Klang Valley, and the squatter settlement

of Kampung Haji Abdullah Hukom have been chosen for study. TTDI Jaya and Kampung Haji Abdullah

Hukom are two totally different areas.

2. TTDI Jaya and Kampung Haji Abdullah Hukom

The TTDI Jaya housing development was ready for occupation in 1994, and started to experience flash

floods in 1996. TTDI Jaya is located on the flood plain of the Damansara River and the flood plain of the

Ayer Kuning River, a tributary of the Damansara River. The Damansara catchment is one of the areas with

the most rapid rates of development in the Klang Valley (Selangor Waters Management Authority, 2004). In

2006, the population of the Damansara catchment was estimated at 400,000. The Damansara River, which

flows through TTDI Jaya, is 21 km long and together with its tributaries forms the Damansara catchment, covering 148 sq km. Kampung Haji Abdullah Hukom is located in Bangsar, about 2.5 kilometres from the centre of Kuala Lumpur. Like TTDI Jaya, it is located in the Klang Drainage Basin, but the difference is that this settlement is located on the flood plain of the Klang River itself. At the south end of Kampung Haji Abdullah Hukom, there is a tributary, the Anak Ayer Batu River, which has its source on Bangsar Hill and flows into the Klang River.

Kampung Haji Abdullah Hukom is one of the early squatter settlements in the Klang Valley, and gained its first residents in the early 1900s. However, according to the Kampung Haji Abdullah Hukom committee

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leader, it was “officially” opened in 1946. Kampung Haji Abdullah Hukom is a squatter settlement formed as a result of the imbalance in urban development in the early years of Kuala Lumpur. Historically, due to the growth of mining in the heart of Kuala Lumpur and rubber in the State of Selangor in the late 1890s, migration from rural to urban areas had continued to increase and had raised the demand for land to be developed for settlements (Gullick, 1994 and 1956). However, the limited number of settlements developed for the urban poor has severely affected their choice of places in which to settle in the city. Consequently, due to the serious need for living space, any vacant land, especially in the flood plain areas, has become attractive. The advantage of living in flood plain areas is that they are located by the river, which was seen to support people’s domestic needs for water for drinking, washing and bathing. Therefore, by finding a suitable place to settle, like Kampung Haji Abdullah Hukom, the urban poor could continue their life in the city and could take advantage of the opportunities offered by urban activities. However, both TTDI Jaya and Kampung Haji Abdullah Hukom have frequently suffered from flash floods and both communities are exhausted by the misery of flash flooding in their living areas. From 1996 until today, TTDI Jaya has experiencing more than 15 flash flood events, while Kampung Haji Abdullah Hukom, has experienced over 40 flash floods, as reported by the Kampung leader. According to DID reports (2001 and 2003), the flash floods in 2000 and 2002 were among the worst that had occurred in the Kampung. In order to understand the impact of flash floods on the community, questionnaire surveys, interviews

and observations were taken. Twenty respondents from TTDI Jaya and fifteen from Kampung Haji Abdullah Hukom were interviewed. Three hundred respondents from TTDI Jaya (which has 960 households) participated in the questionnaire survey, while in Kampung Haji Abdullah Hukom, out of 500 households, 100 respondents were engaged. The results from the questionnaire are combined with the interviews in order to gain a fuller understanding.

3. Psychological impacts on residents of TTDI Jaya and Kampung Haji Abdullah Hukom

According to Gardner and Stern (2002), psychological impacts are produced by the sorts of events that elicit emotional reactions. Even though the psychological impacts on residents of TTDI Jaya and Kampung Haji Abdullah Hukom cannot be seen, most residents are affected by flash floods, for example when it is raining heavily, during the event and afterwards. The impact before the event only sets in after residents have experienced their first flash flood. During and after flash floods, these psychological impacts occur in two stages. The first stage is when people can still tolerate the situation, while stage two arises when residents can no longer tolerate the flooding. For example, in stage one, during flash floods; various feelings are experienced by residents, including panic, sadness, worry and fear. For the case of TTDI Jaya, 78 per cent of respondents reported experiencing all these feelings when the floodwaters start entering their houses. The second stage is when the level of water reaches its maximum height and many household goods are ruined, at which point residents' feelings towards the event turn to anger, which is directed at the authorities. Additionally, after the floods, the feelings of sadness and anger continue. According to the questionnaire survey, 14.5 per cent of respondents categorised flash floods as extremely severe and 57.5 per cent said that they were severe. This gives a total of 72 per cent of respondents regarding the flash flood event as extremely severe and severe. However, the greatest stress for the community is when the flash floods have abated, because they leave a muddy, smelly mess that takes at least two weeks to clear. Consequently, the impacts rise in the second stage when extra work, time and energy are needed in order to return homes to their normal state. Normally, people need to take one or two days off work just to clean their houses. In addition, most affected residents feel exhausted, and 84 per cent of respondents end up becoming ill and need to take medical leave for a few

days. Chin, a housewife who lives in Jalan U2/42, reported that she had felt sick after one week of cleaning

because it was not ordinary cleaning; it was awful. The contaminated mud was about three to six inches deep

in the house and there was mud in the car porch and stains on the wall.

This situation could be tolerated if it only happened once and was not a recurrent issue.

However, flash

floods are unpredictable. There was one occasion when flash floods occurred twice in a month.

Nora Johan,

a teacher from Jalan U2/20, reported that it was the month of Ramadhan, at the end of which most people in

TTDI Jaya celebrate Eid. During that month, preparations are normally made for the celebration and most

people smarten up their homes with fresh paint, new curtains and decorations. The flash floods that occurred

during that month ruined the preparations for Eid and the mood of the community. At the second stage, due

to flood losses, the residents face the dilemma of whether to spend money on new household goods to

replace their damaged belongings. They have to weigh up the risk of further losses versus the inconvenience

of living without certain household items.

After the first experience of flash flooding, these psychological impacts have left the people of TTDI

Jaya living with trauma, phobia and fear whenever there is heavy rain. Even though these impacts cannot be

seen physically, most people in TTDI Jaya suffer from them. Eighty per cent of the respondents who had

experienced the first and second flash floods in 1996 and 1998 respectively noted that they faced trauma

every time there was heavy rain.

According to Kamarudin, a businessman from U2/39, repeated flash floods induce in him a sense of

trauma and phobia every time it rains. He frequently suffers from sleeping difficulties when it rains at night.

He sometimes cannot even close his eyes and frequently wakes up to look out of the window to monitor the

situation. This behaviour has occurred since he experienced the first flash flood in 1994. He is not alone;

many other dwellers have suffered the same problems. Rohani Abdullah, a government servant from Jalan P

U2/4, reports that she just cannot sleep at night when it is raining. Sometimes she walks along the river with

her husband and watches the water to see whether it will spill out or not. Other residents do the same thing --

lines of umbrellas can be seen along the river. She was particularly worried because her house is located not

far from the river and it is crucial for her to know if the river will flood so that she can make preparations as

soon as possible. She reports that if the flood gets into the settlement area, her house will be among the first

to be affected.

Zukri Jamal, a member of the TTDI Jaya Committee, reported that if there is heavy rainfall for more than

an hour, the second stage is that people start to move their cars from the carports and park them on higher

ground. Lines of cars can be seen on the side roads starting from the bridge and leading out from the area to

high ground. Moreover, if the rain falls during working hours, most people go home early to prepare for a

flash flood, even if no flooding actually occurs. The trauma of flooding affects residents when they are away

from home too. For example, Zarina Hasan said she always faces a dilemma if she and her family need to be

away for two or three days. She said she moves all her important belongings to a safe place, informs her

neighbour that she is going away and leaves a contact number in case flash floods hit the area, so that she can

come back home as soon as possible.

This type of action has become part of the community's behaviour due to the psychological impacts that

they have experienced. TTDI Jaya can be categorised, in the words of Burch (1987), as a washland region, as

it is located in the lower catchment of the Damansara River. Development on a washland area is less critical

than development on a flow-plain, according to Burch (1987), because the velocity of the floodwater will be

decreased at that point and it will thus be less dangerous to people in terms of the possibility of being washed

away by the water from upstream. Nonetheless, due to the surrounding developments, which are higher than

TTDI Jaya, the floodwater recedes very slowly and the community needs to wait for longer before it returns

to its normal conditions. Therefore, the longer duration of flooding will cause more damage to belongings,

hence increasing tension and pressure on the community. Thus, the psychological impact of flash floods in

TTDI Jaya has damaged the image of this commercial development.

In the case of Kampung Haji Abdullah Hukom, the community there has also suffered intangible psychological impacts such as anxiety, stress and increasing tension. Faezah Ramli, a self-employed resident,

expressed it thus: her house is among those that suffer most from flash floods because she lives in the lower

area of Kampung Haji Abdullah Hukom. Whenever the river starts to spill over its banks, her house will be

among the first to fill with water. She does not have time to put everything in a safe place if there is no

warning or sign of a flood and if it has not rained heavily in the centre of Kuala Lumpur.

Therefore,

whenever the clouds look dark, she starts to worry, and she feels tense when it starts raining.

However, most

respondents from the Kampung Haji Abdullah Hukom experienced some difficulty in explaining the psychological impacts they had suffered. There were two possible reasons for this: firstly, residents had to ignore their feelings because they needed to live there, and some of them had become so familiar with the repeated flash floods that it was hard for them to express the exact feelings they experienced. Secondly, perhaps due to their lack of schooling, it was difficult for them to rationalise and articulate the psychological impacts.

As with the TTDI Jaya respondents, the psychological impacts on Kampung residents are experienced before, during and after the flash floods. However, in explaining their feelings, the explanations were less reflective than those given by the TTDI Jaya respondents. They spoke in a very different way when talking about their losses and property damage, and their expressions revealed the extent of the losses incurred as a result of the flash floods. Nevertheless, even though their expressions were flat, all of the respondents said that they felt anxiety and tension before the event when they noticed that it was raining heavily. The anxiety was more about the safety of the household, and was even greater for those with many children and elderly relatives who would need to be monitored if flash flooding occurred. Some of them, including some of the children in Kampung Haji Abdullah Hukom, also had difficulty in sleeping when it was raining heavily.

Rohaya Osman, a teenager, said that if there is heavy rain during the night, her parents stay up, and therefore she too cannot sleep. During flood events, 94 per cent of respondents said that they felt scared and worried about whether the floodwaters would continue to rise. After a flood, there were mixed feelings among residents. However, not all respondents were able to vocalise their exact feelings after the flash floods had

subsided: 92 per cent of respondents said they were tired from cleaning up their houses. One resident, Aziza

Asri, a housewife, said that she do not know how she felt after the flooding had cleared; after cleaning the house, she felt tired because it took a few weeks to get everything properly clean. Sometimes she felt sad, sometimes tense. Overall, she expressed mixed feelings and a variety of psychological impacts as a result of the flash floods.

4. Conclusion

From observation, the psychological impacts on the lives of these two communities were extremely

serious. Hence, in order to minimise the impacts of the frequent flash floods in TTDI Jaya and Kampung Haji Abdullah Hukom, various adjustments have been implemented by the residents, including both structural and non-structural techniques. The quality of life has declined in response to the psychological impacts experienced by the residents of TTDI Jaya. Additionally, although the living environment of the residents of Kampung Haji Abdullah Hukom was already considered to be in decline, the psychological impacts of flash floods have further added to this deterioration. Many of the residents have been caught in two minds as to whether to leave or to stay. However, people still live in TTDI Jaya, even though the problem of flash floods remains unresolved, as most of them have bought houses there and are having difficulty selling them, as this area has been highlighted in the local newspaper as being flood-prone. For the community of Kampung Haji Abdullah Hukom, their status as a low-income community makes it difficult for them to move to a safer place to live, as moving would increase their living expenses. Rapid development in the Klang Valley means that more developments will appear on the flood plain. Therefore, more urban communities will be exposed to flash floods, as structural techniques applied in order to reduce flash flooding in the Klang Valley seem not to be particularly effective. Hence, more people will experience psychological impacts, which will affect the urban quality of life. Generally, for the urban folk one of the objectives living in the city is to improve their quality of life. Therefore, an urgent rethink by the government is needed with regard to the placement of development projects on the flood plain. Climate change could bring more rain to the Klang Valley and more people, particularly at the middle and upper levels of society, will suffer harm, as the developments proceeding on the flood plain are considered to be well-planned projects that are targeted specifically at the upper and middle classes in urban society.

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